

**U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
OFFICE OF QUALITY ASSURANCE**

AUDIT REPORT

OF

**CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR**

AT

LAS VEGAS, NEVADA AND THE YUCCA MOUNTAIN SITE

AUDIT NUMBER M&O-ARC-99-011

MAY 17 THROUGH 21, 1999

Prepared by: _____ Date: _____

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Office of Quality Assurance**

Approved by: _____ Date: _____

**Robert W. Clark
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1.0 EXECUTIVE SUMMARY

As a result of Quality Assurance (QA) Audit M&O-ARC-99-011, the audit team determined that, with the exception of those areas where deficiencies existed, the Civilian Radioactive Waste Management System Management and Operating Contractor (CRWMS M&O) is satisfactorily implementing examined portions of the QA Program described in the U.S. Department of Energy (DOE) Office of Civilian Waste Management (OCRWM) Quality Assurance Requirements and Description (QARD), DOE/RW-0333P, Rev. 8, and implementing procedures. Implementation of QA Program Elements 1.0, 2.0, 6.0, 8.0, 9.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, Supplement I, Supplement IV and Appendix C was satisfactory. Implementation of QA Program Elements 5.0 and Supplement V was found to be unsatisfactory.

The audit team identified a total of 18 conditions adverse to quality during the audit. Five of these conditions resulted in the issuance of five new OCRWM Deficiency Reports (DRs) and one referral to an existing DR. Details of the DRs are documented in Section 5.5.2 of the report. The corrective actions related to six of these conditions are addressed in previously issued OCRWM deficiency documents identified in Section 5.5.5 of the report, several of which were initiated by the CRWMS M&O line organization as part of their self assessment. There were six deficient conditions identified that required only remedial action that were corrected during the audit (CDA). Details of the CDA conditions are documented in Section 5.5.4 of the report. Additionally, there were 13 recommendations resulting from the audit as documented in Section 6.0 of the report.

The audit team determined that implementation of QA Program Element, 16.0 Corrective Action, was particularly effective for the areas examined during this audit. CRWMS M&O personnel contacted during the audit were courteous and timely in responding to the auditor's requests for information and are to be commended for their efforts in identifying deficiencies and completing the remedial actions necessary to close the six CDA deficiencies described in Section 5.5.4 of this report.

2.0 SCOPE

This limited-scope compliance-based audit was conducted to evaluate the adequacy, compliance, and the effectiveness of the CRWMS M&O in implementing the QA Program described in the QARD and the CRWMS M&O implementing procedures for activities transitioned from Kiewit/Parsons Brinkerhoff (K/PB).

The following QA Program Elements were evaluated during the audit in accordance with the approved audit plan:

QA PROGRAM ELEMENTS/REQUIREMENTS

1.0	Organization
2.0	Quality Assurance Program
5.0	Implementing Documents
6.0	Document Control
8.0	Identification and Control of Items
9.0	Control of Special Processes
11.0	Test Control
12.0	Control of Measuring and Test Equipment
13.0	Handling, Storage, and Shipping
14.0	Inspection, Test, and Operating Status
15.0	Nonconformances
16.0	Corrective Action
17.0	Quality Assurance Records
Supplement I	Software
Supplement IV	Field Surveying
Supplement V	Control of Electronic Management of Data
Appendix C	Mined Geologic Disposal System

The following QA Program Elements were not reviewed during the audit because they were found to be not applicable, since the CRWMS M&O currently has no activities to which these elements apply, or they were not part of the transitioned activities, or they were reviewed during the overall CRWMS M&O audit, or they will be reviewed at a later date during the audit of the Office of Quality Assurance or the audit of Design Control.

3.0	Design Control
4.0	Procurement Document Control
7.0	Control of Purchased Items and Services
10.0	Inspection
18.0	Audits
Supplement II	Sample Control
Supplement III	Scientific Investigation
Appendix A	High-Level Waste Form Production
Appendix B	Storage and Transportation

3.0 AUDIT TEAM AND OBSERVERS

The following is a list of audit team members and their assigned areas of responsibility:

<u>Name/Title/Organization</u>	<u>QA Program Elements/Requirements</u>
Pat V. Auer, ATL, OQA	1.0 and 16.0
John Friend, Auditor, OQA	2.0, 9.0, 11.0, and 12.0
Emily Jensen, Auditor, OQA	2.0 and Supplements I and V
Howard Cox, Auditor, OQA	5.0 and 6.0
Linda Galyon, Auditor, OQA	8.0, 13.0, 14.0, 15.0, and 17.0
Dave Osborne, Auditor, OQA	8.0, 12.0, and Supplement IV

4.0 AUDIT MEETINGS AND PERSONNEL CONTACTED

A pre-audit meeting was held at the CRWMS M&O offices in Las Vegas, Nevada, on May 17, 1999. CRWMS M&O personnel at the Yucca Mountain Site attended the pre-audit meeting via video conferencing. Daily debriefing and coordination meetings were held with CRWMS M&O management and staff, and daily audit team meetings were held to discuss audit status. The audit was concluded with a post-audit meeting held in Las Vegas, Nevada, on May 21, 1999.

Personnel contacted during the audit, including those who attended pre-audit and post-audit meetings, are listed in Attachment I.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Effectiveness

The audit team concluded that, overall, with the exception of those Program Elements found unsatisfactory, the CRWMS M&O is adequately and effectively implementing the QA Program for the scope of this audit. The results for each Program Element evaluated are contained in Attachment 2, Summary Table of Audit Results

5.2 Stop Work or Immediate Corrective Actions Taken

There were no stop work actions or immediate corrective actions taken as a result of this audit.

5.3 QA Program Audit Activities

A Summary Table of Audit Results is provided in Attachment 2. Details of the audit, including the objective evidence reviewed, are documented in the audit checklist. The checklist is maintained as a QA record.

5.4 Technical Audit Activities

There were no technical areas evaluated during this audit.

5.5 Summary of Deficiencies

The audit team identified a total of 18 conditions adverse to quality during the audit. Five of these conditions resulted in the issuance of five new OCRWM DRs and one referral to an existing DR. Details of the DRs are documented in Section 5.5.2 of the report. The corrective actions related to six of these conditions are addressed in previously issued OCRWM deficiency documents identified in Section 5.5.5 of the report. There were six deficient conditions identified that required only remedial action that were corrected prior to the post-audit meeting. Details of these CDA conditions are documented in Section 5.5.4 of the report.

5.5.1 Corrective Action Requests

None.

5.5.2 Deficiency Reports

LVMO-99-D-063

This DR was issued to document conflicts with records issues between CRWMS M&O Procedure QAP-12-1, Rev. 6, *Control of Measuring and Test Equipment and Calibration Standards*, and Work Instruction NWI-SMF-005Q, Rev. 3, *Control of Site Facilities Office Measuring and Test Equipment*. Records {Out of Calibration Report (OCR)} generated by Work Instruction NWI-SMF-005Q, Rev. 3, do not match instructions for completing the form, therefore the form does not contain the information required by the procedure.

LVMO-99-D-064

This DR was issued to document that calibration data packages and field survey notes do not contain the documentation (e.g., dates used, identification of process, data collected or items examined) required by Work Instruction NWI-ESF-012Q, Rev. 0, *Control of Survey Equipment*.

LVMO-99-D-065

This DR was issued to document Work Instruction NWI-ESF-035Q, Rev. 0, EICN 2, *ESF Equipment Operation and Maintenance*, Fluid Record

Activity logs are not being correctly filled out in the field and when technical corrections are made in the office by other than the originator, there is no traceability, explanation or justification for the change.

LVMO-99-D-070

This DR was issued to document that a position description and verification of education and experience were not completed in accordance with CRWMS M&O Procedure QAP-2-2, Rev. 3, *Verification of Personnel Qualifications*, for a field survey person who was performing software validation in accordance with AP-SI.1Q, Rev. 1, *Software Management*.

LVMO-99-D-072

The CRWMS M&O's representative, identified that there are two (2) current Q Field Work Packages (FWPs). FWP-CMO-99-01 and 02. Through review of these two FWPs at the Document Control Center located in the Field Operations Center the audit team attempted to verify that FWP reviews had been conducted by the organizations identified in the procedure. It was found that, contrary to requirements of Procedure NLP-5-3, Rev. 1, *YMP Site Construction Field Work Authorization Process*, FWP-CMO-99-01 had been approved by the CRWMS M&O, issued to the field, and work was being done without the required reviews by the Safety Assurance and OQA organizations.

Deficiency Identification Referral Form dated 6/9/99.

This deficiency will be added to LVMO-99-D-045 (in accordance with AP-16.1Q, Rev. 4, *Management of Conditions Adverse to Quality*) and will document that a supervisor did not perform (in accordance with CRWMS M&O Procedure QAP-2-1, Rev. 6, *Indoctrination and Training*) an evaluation to assess the need for additional proficiency training based on changes in work processes as a result of the transition (i.e., QARD, Supplement V, *Control of the Electronic Management of Data*, and NLP-3-15, Rev. 4, *To Be Verified and To Be Determined Monitoring Systems*). Additionally, one individual was not trained to Work Instruction NWI-ESF-035Q, Rev. 0, EICN 2, in accordance with CRWMS M&O Procedure QAP-2-1, Rev. 6.

5.5.3 Performance Reports

None.

5.5.4 Deficiencies Corrected During the Audit

Deficiencies considered isolated in nature and only requiring remedial action can be CDA. The following deficiencies were identified and corrected prior to the post audit meeting:

1. Procedure QAP-12-1, Rev. 6, subsection 5.7.F requires control of the issuance of M&TE Out of Calibration Report (OCR) numbers by generating a log. There were a total of 14 OCRs generated and no log had been developed. A log was developed and put in place during the audit.
2. Work Instruction NWI-ESF-023Q, Rev. 0, *Concrete Batch Plant Operation*, subsection 3.1.3, requires that a responsible Batch Plant Operator be designated in writing. This designation had not been completed; therefore, a written designation was completed during the audit.
3. Procedure NLP-3-15, Rev. 5, subsection 5.2.1, Attachment II and resolution of LVMO-98-C-006 requires a TBV Description Form to be completed for software which has not been qualified under AP-SI.1Q. Software was being used by Field Surveying which had been identified as TBV; however, no TBV number had been requested or assigned. The appropriate forms requesting TBV numbers were submitted to the TBV coordinator prior to completion of the audit.
4. Water meter usage logs completed from April 1, 1999, to April 15, 1999, referenced the incorrect revision (2) of Work Instruction NWI-SMF-005Q, Rev.3. The coordinator reviewed all packages submitted during that time frame and placed the correct revision number on the forms prior to completion of the audit. The audit team determined the changes to the usage log forms were editorial in nature and did not impact the information contained on the forms.
5. Work Instruction NWI-ESF-012Q, Rev. 0, subsection 4, requires submittal of Calibration Reports for calibrated equipment. The Calibration Report for one piece of equipment (DOE #630021) had not been submitted. The report was located and submitted prior to completion of the audit.
6. Procedure QAP-12-1, Rev. 6, subsection 5.4.2, requires tagging or affixing a sticker for identification of M&TE. Eight pieces of survey equipment controlled by Work Instruction NWI-ESF-012Q, Rev. 0, did not have calibration stickers attached as required by QAP-12-1,

Rev. 6. The audit team determined that all other necessary calibration documentation had been completed, the equipment was calibrated and within its calibration period. The survey group tagged the affected equipment prior to completion of the audit.

5.5.5 Follow up of Previously Identified Deficiency Documents

The following six deficiencies were previously self-identified and initiated by the CRWMS M&O. Follow-up review during the audit revealed that corrective actions are in process and no new examples of deficiencies were identified.

LVMO-99-D-054

This DR was recently initiated by the CRWMS M&O on May 13, 1999, to document a lack of a letter of authorization to proceed prior to start of construction activities.

LVMO-99-D-037

This DR was initiated by the CRWMS M&O and issued to the CRWMS M&O on March 26, 1999 to document initiation of site construction activities prior to the appropriate work packages being approved.

LVMO-99-D-045

This DR was initiated by the CRWMS M&O and issued to the CRWMS M&O on April 13, 1999, to document lack of objective evidence that individuals were either assigned Reading/Self-Study and/or trained to the requirements of QAP-7-3, Rev. 2, *Procurement Process*, QAP-7-5, Rev. 2, *Acceptance of Items and Services*, and YAP-5.7Q, Rev. 2, *Testing Field Work Packages* prior to performing work.

LVMO-99-D-043

This DR was initiated by the CRWMS M&O and issued to the CRWMS M&O on April 20, 1999, to document insufficient information to identify test methods and maintenance instructions for when the TBM is or is not in use.

LVMO-99-D-044

This DR was initiated by the CRWMS M&O and issued to the CRWMS M&O on April 20, 1999, to document the lack of a plan or procedure requirement to address hydrocarbon spills at the ESF.

LVMO-99-D-028

This DR was initiated by the CRWMS M&O and issued to the CRWMS M&O on February 17, 1999, to document the lack of acceptance documentation for procured services.

The following two deficiencies were identified during previous OCRWM audits, as noted for each.

LVMO-98-D-055

This DR was issued to the CRWMS M&O on March 26, 1998, as a result of the OCRWM OQA Audit M&O-ARC-98-06, to document that the CRWMS M&O has not delineated measures to identify and describe activities that result in determining controls for the electronic management of data. It was determined during the audit that this DR will also be applicable to the Field Surveying activities. Corrective actions for this DR are in process.

LVMO-98-D-060

This DR was issued to K/PB on March 26, 1998, as a result of the OCRWM OQA Audit K/PB-ARC-98-07, to document that K/PB was not implementing AP-17.1Q, Rev. 0, ICN 2, *Records Source Responsibilities for Inclusionary Records*, for submitting records to the Records Processing Center. This DR and its associated corrective action commitments are applicable to transitioned activities. Records are being reviewed in accordance with applicable commitments as required by the remedial and preventive action response.

6.0 RECOMMENDATIONS

The following recommendations resulted from the audit and are presented for consideration by CRWMS M&O management:

1. Subsurface General Construction Specification BAB000000-01717-6300-01501, Rev. 5, Attachment A, page 12, NOTE: states in part that commercial

labs (i.e., not on QSL) can be used to calibrate diesel emissions test instruments. Work Instruction NWI-ESF-021Q, Rev. 0, EICN 1, *Diesel-Procured Equipment Emission Testing and Control Procedure* requires diesel emissions test equipment to be calibrated in accordance with QAP-12-1 which requires a qualified supplier. The audit team recommends clarifying Work Instruction NWI-ESF-021Q, Rev. 0, EICN 2, to reflect the appropriate type of calibration required by the specification.

2. NWIs require various steps to be performed, however, the procedures (e.g., Work Instruction NWI-ESF-047Q, Rev. 0, *Receipt and Handling of Materials and Items*, Exhibits 1 and 2, visual and storage monitoring checklists) do not necessarily require the actions to be documented or if the actions are documented, the documentation is not necessarily required to be maintained. The audit team recommends clarifying procedures steps to ensure appropriate documentation of actions and records to be maintained.
3. Work Instruction NWI-ESF-011Q, Rev. 0, *Acceptance of Survey Software Using Controlled Survey Data* should be cancelled as AP-SI.1Q, Rev. 1, replaces it.
4. Work Instruction NWI-ESF-023Q, Rev. 0, *Concrete Batch Plant Operation*, requires Batch Plant Operator to ensure equipment is calibrated in accordance with manufacturer's instructions. The audit team determined that the intent of the procedure is to have the operator verify that the equipment is calibrated. The audit team recommends changing NWI-ESF-023Q, Rev. 0, to clarify what is actually being done in the field. The audit team determined there was no impact because the equipment had been properly calibrated.
5. At the Batch Plant, admixture is supposed to be stored in accordance the with manufacturer's instructions, this cannot be verified because those instructions are not available at the Batch Plant. The audit team recommends obtaining a copy of the manufacturer's instructions to be kept at the batch plant to ensure proper storage of admixture. The audit team determined there was no impact because it had been previously determined that proper storage requirements were being met.
6. The audit team recommends Work Instruction NWI-049Q, Rev. 0, *Steel Set Jacking/Expansion*, paragraph 3.1.1 be reworded to indicate the way that the jacking rams are inspected, e.g., bore diameter instead of plunger diameter. The audit team determined there was no impact because there has been no implementation of this procedure to date.
7. The audit team recommends the procurement of out-of-calibration tags so they will be available for use if needed. (None available at this time)

8. Work Instruction NWI-SMF-005, Rev.3, ECR 99-027 to Specification 01501 (retroactive) allows records for maintenance (NON-TBM) to be downgraded to QA:N and certificates attesting to maintenance being performed collected as QA:L records. CRWMS M&O is in process of backfitting so that the minor problems noted with the existing maintenance records will not be quality affecting. The records will be corrected by the regular record review process. The audit team recommends that the CRWMS M&O request a surveillance to determine adequacy of the records review process.
9. QAP-12-1 and Work Instruction NWI-SMF-005, Rev. 3: These procedures are utilized by all CRWMS M&O M&TE Personnel on the project. CRWMS M&O M&TE Personnel on the pad are working to parts of both procedures. This is confusing for them and it is hard to follow the process as these procedures utilize QAP-7, *Procurement Control*, series procedures for evidence of compliance. The audit team recommends clarifying the M&TE process utilized by CRWMS M&O M&TE Personnel on the ESF Pad.
10. Work Instruction NWI-SMF-005, Rev. 3, M&TE Water Usage Log
Instructions do not cover water meters relocated in the field for the completion of the water usage report. The audit team recommends the instruction be revised to state that only the last usage log needs to be signed when returned to the M&TE office.
11. Work Instruction NWI-ESF-008Q, Rev. 0, EICN 1, *Surveying*: This procedure was rolled from two K/PB procedures and there is redundancy on establishing Subsurface and Surface controls. The process is essentially the same for both. This procedure should be revisited and revised as appropriate to streamline the Survey process.
12. Work Instruction NWI-ESF-008Q, Rev. 0: This procedure may be utilized for both Q and Non-Q applications and the records section currently only identifies QA:L Record Packages. During the next revision of this procedure it is recommended that Section 4.1 be changed to address Non-Q records. (To date, no CRWMS M&O Survey records have been sent to the RPC and this change would allow proper record designations to be utilized)
13. Work Instruction NWI-ESF-012Q, Rev. 0: The calibration report (Exhibit 2) should be revisited to determine if all appropriate information could be captured in the manner that the calibration process takes place.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

ATTACHMENT 1

Personnel Contacted During the Audit

Name	Organization/Title	Pre-audit Meeting	Contacted During Audit	Post-Audit Meeting
R. Griffith	Field Engineering Records Clerk		X	
R. Dresel	Manager, Field Engineering Department	(X)	X	X
M. Wakefield	Field Engineer		X	
Tom Tomek	Welding Engineer	(X)	X	
Z. Armstrong	Shipping & Receiving Technician		X	
F. Beason	M&TE Custodian		X	
R. Faye	Maintenance Supervisor		X	
D. Wilkins	Assistant General Manager	X		X
R. Murthy	OQA Team Lead			X
R. Sandifer	Manager, Site Construction & Operations	X	X	X
J. Clark	Deputy Assistant General Manager Operations	X		X
J. Blaylock	General Engineer	X	X	X
M. Diaz	General Engineer	X		X
R. Law	Construction Manager	(X)	X	X
R. Taylor	Staff	X	X	X
J. Beyer	Supervisor, Project Engineering	X	X	X
R. Berlien	Engineer			X
J. Martin	QA Site Manager	X		X
C. Warren	QA Verification Manager	X	X	X
E. Opelski	QA Internal Audit Lead			X
H. Greene	Quality Systems Manager	X		X
J. Justice	Training Supervisor	X	X	
R. Morgan	Engineering Assurance Manager	X		
A. Williams	General Engineer	X		
G. Bates	Chief of Survey		X	
C. Taylor	Training Records		X	
L. Schwartzwalter	Field Technical Training		X	
M. Penovich	Training		X	
K. Thompson	Records Retrieval		X	
P. Turner	Training & Development		X	
E. Fitch	Field Engineering		X	
J. Heaney	Office Engineering		X	
D. Robison	Office Engineering		X	
B. Johnson	Batch Plant		X	
S. Bowlinger	Field Document Control		X	
B. Newman	Construction Engineering		X	
M. Goyda	Sr. QA Specialist		X	
D. Davis	Site Facilities		X	
T. Dickson	Construction Engineering		X	
B. Cameron	Manager, Support Services and Maintenance		X	
R. Cunningham	Construction Engineering		X	

(X) Attended Pre-audit Meeting via Video Conference at Yucca Mountain Site

ATTACHMENT 2

Summary Table of Audit Results

CRITERIA	IMPLEMENTING DOCUMENTS	DETAILS (CHECKLIST)	DEFICIENCIES	RECOMMENDATIONS	PROGRAM ADEQUACY	PROCEDURE COMPLIANCE
1	QAP-1-0, Rev. 6	Pg. 1	N	N	SAT	SAT
2	NWI-ESF-044Q, Rev. 0	Pgs. 2-5	N	N	SAT	SAT
	QAP-2-1, Rev. 5	Pgs. 6-9	N	N	SAT	SAT
	QAP-2-1, Rev. 6	Pgs. 10-18	LVMO-99-D-045 by referral	N	SAT	SAT
	QAP-2-2, Rev. 3	Pgs. 19-21	LVMO-99-D-070	N	SAT	UNSAT
5	QAP-5-1, Rev. 6	Pgs. 22-23	N	N	SAT	SAT
	NL-5-1, Rev. 3	Pgs. 22-23	N	N	SAT	SAT
	NLP-5-3, Rev. 1	Pgs. 24-26	LVMO-99-D-072	N	UNSAT	UNSAT
	NWI-ESF-022Q, Rev. 0	Pgs. 27-28	N	N	SAT	SAT
	NWI-ESF-023Q, Rev. 0	Pgs. 29-30	CDA #2	RECs. #2, 4 & 5	SAT	SAT
6	Ap-6.1Q, Rev. 1	Pgs. 31-33	N	N	SAT	SAT
	NWI-ESF-009Q, Rev. 0	Pgs. 34-35	N	N	SAT	SAT
8	NWI-ESF-019Q, Rev. 0	Pgs. 36-37	N	N	SAT	SAT
	NWI-ESF-035Q, Rev. 0	Pgs. 38-41	LVMO-99-D-065	N	SAT	UNSAT
	NWI-ESF-049Q, Rev. 0	Pgs. 42-44	N	REC. # 6	SAT	SAT
	NWI-ESF-038Q, Rev. 0	Pgs. 45-49	N	N	SAT	SAT
	NWI-ESF-048Q, Rev. 0	Pg. 50	N	N	SAT	SAT
9	NLP-9-1, Rev. 0	Pgs. 52-53	N	REC. #9	SAT	SAT
	NWI-ESF-029Q, Rev. 0	Pgs. 54-56	N	N	N/A	N/A
	NWI-ESF-028Q, Rev. 0	Pgs. 57-58	N	N	SAT	SAT
	NWI-ESF-026Q, Rev. 0	Pg. 59	N	N	SAT	SAT
	NWI-ESF-027Q, Rev. 0	Pg. 60	N	N	SAT	SAT
11	NWI-ESF-010Q, Rev. 0	Pgs. 61-62	N	N	SAT	SAT
	NWI-ESF-020Q, Rev. 0	Pgs. 63-64	N	N	N/A	N/A
	NWI-ESF-021Q, Rev. 0	Pgs. 65-68	N	REC. #1	SAT	SAT
12	QAP-12-1, Rev. 0	Pgs. 69-73	LVMO-99-D-063 CDAs #1&6	REC. #7	SAT	UNSAT
	NWI-SMF-005Q, Rev. 3	Pgs. 74-80	CDA #4	RECs. #8, 9, & 10	SAT	SAT
	NWI-ESF-040Q, Rev. 0	Pg. 81	N	N	SAT	SAT
13	NWI-ESF-047Q, Rev. 0	Pgs. 82-84	N	REC. #2	SAT	SAT
14	NWI-ESF-016Q, Rev. 0	Pgs. 85-86	N	N	SAT	SAT
	NWI-ESF-030Q, Rev. 0	Pg. 87	N	N	SAT	SAT
15	YAP-15.1Q, Rev. 4	Pgs. 88-90	N	N	SAT	SAT
16	AP-16.1Q, Rev. 3	Pgs. 91-93	N	N	SAT	SAT
	AP-16.2Q, Rev. 2	Pg. 94	N	N	SAT	SAT
	AP-16.4Q, Rev. 0	Pg. 95	N	N	SAT	SAT
17	AP-17.1Q, Rev. 0, ICN 2	Pg. 96	N	N	SAT	SAT
SI	QAP-SI-0, Rev. 4	Pgs. 97-102	CDA # 3	N	SAT	SAT
	NWI-ESF-007Q, Rev.1	Pgs. 101-102	N	N	SAT	SAT
	AP-SI.1Q, Rev. 0	Pgs. 103-107	N	N	SAT	SAT
SIV	NWI-ESF-008Q, Rev. 0	Pgs. 108-113	N	RECs. #11 & 12	SAT	SAT
	NWI-ESF-012Q, Rev. 0	Pgs. 114-116	LVMO-99-D-064 CDA #5	REC. #13	SAT	UNSAT
SV	YAP-SV.1Q, Rev. 0	Pg. 120A	N	N	UNSAT	UNSAT
	NWI-ESF-011Q, Rev. 0	Pgs. 117-121	N	REC. #3	SAT	SAT